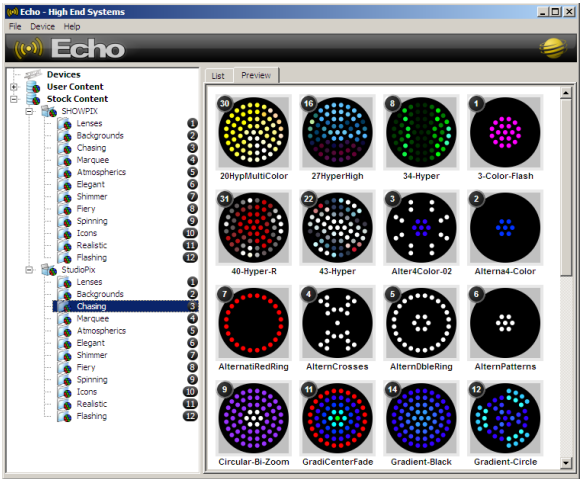

Echo™ Software

User Manual

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HIGH END SYSTEMS®

Echo™ User Manual Version 1.0
January, 2009

Contacting High End Systems®

Sales Department

High End Systems, Inc.
2105 Gracy Farms Lane
Austin, TX 78758 USA
voice: 512.836.2242
fax: 512.837.5290
Toll Free: 800.890.8989

Customer Service

High End Systems, Inc.
2105 Gracy Farms Lane
Austin, TX 78758 USA
voice: 800.890.8989
fax: 512.834.9195
toll free: 800.890.8989
email: support@highend.com

World Wide Web: http://www.highend.com

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Echo Software

You can use Echo software to convert, organize, and transport user content to SHOWPIX and StudioPix fixtures as well as upload content and fixture firmware to High End Systems devices on a DMX link.

Echo software communicates with fixtures using a USB upload module or a Wholehog single USB DMX widget to:

- Upload fixture firmware to HES fixtures
- Convert custom media files to a SHOWPIX and StudioPix format
- Convert custom media files to SHOWPIX or StudioPix Pixellage
- Organize SHOWPIX and StudioPix content for management and transport
- Upload and download content to or from fixtures
- Upgrade devices on the link with updated SHOWPIX and StudioPix stock content and fixture software
- Create and manage Pixellage Content

Echo Setup

Hardware Setup

Echo software requires a computer running Windows XP, with Service Pack 2 or 3 installed or Windows Vista and an internet connection to download the software.

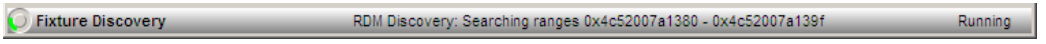
For uploading content or fixture firmware to a fixture on a DMX link, you will need a USB upload module or a Wholehog single USB DMX widget.

Installing Echo Software

The latest version of Echo software is available from the High End Systems website at (http://www.highend.com/support/Echo/EchoSoftware.asp). After downloading Echo to your computer, a standard Windows install wizard will prompt you through the installation process.

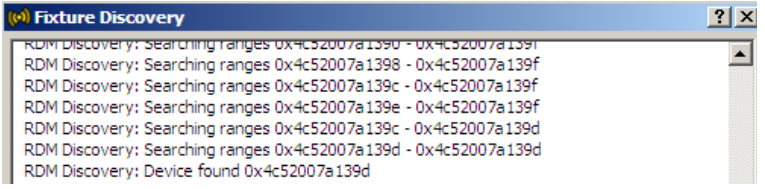
Launching Echo

When you start up Echo, the software automatically initiates a Fixture Discovery process to locate all High End System fixtures along with any other RDM devices connected to the same DMX link. A status bar along the bottom of the Echo window tracks the fixture discovery.



Note: This will not happen unless a widget and fixtures are attached.

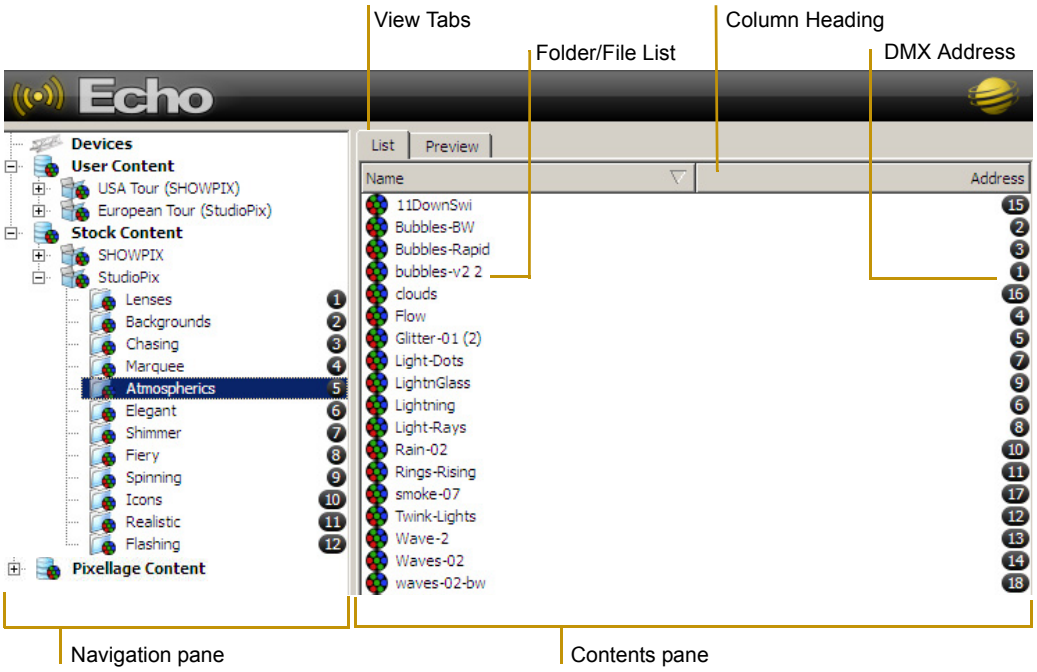
If you click on the Status Bar, a window will open to show the ongoing status of the discovery process and note any errors.



When the launch is complete, all discovered devices will be listed in the under **Devices** in the navigation pane along with their current DMX Start Address.

The Echo User Interface

Echo software uses a typical Windows explorer structure for organizing Device information and Content.

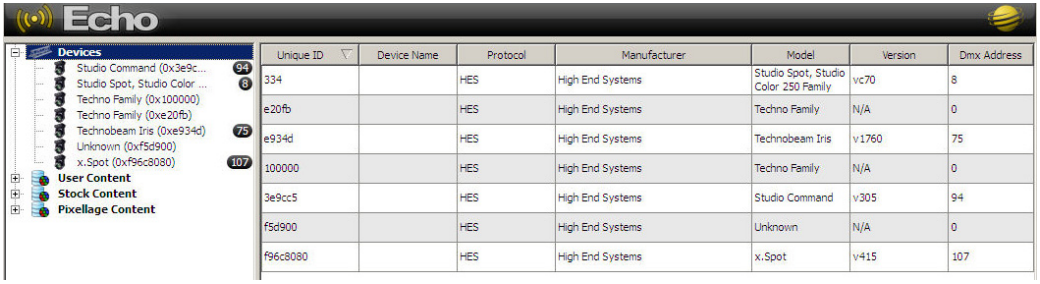


- The top level of the navigation pane contains Devices, User Content, Stock and Pixellage Content.
- At each navigation level you can display the contents as a list or a preview by selecting the tab in the pane.
- You can click on a Column Heading to sort the content displayed by Name or Address.

Device Window

Viewing All Devices

The Device window displays the following information for all the discovered High End Systems and RDM fixtures on the DMX link.



Unique ID	Device Name	Protocol	Manufacturer	Model	Version	Dmx Address
334		HES	High End Systems	Studio Spot, Studio Color 250 Family	vc70	8
e20fb		HES	High End Systems	Techno Family	N/A	0
e934d		HES	High End Systems	Technobeam Iris	v1760	75
100000		HES	High End Systems	Techno Family	N/A	0
3e9cc5		HES	High End Systems	Studio Command	v305	94
f5d900		HES	High End Systems	Unknown	N/A	0
f96c8080		HES	High End Systems	x.Spot	v415	107

Unique ID is the fixture's unique 10-character number.

Device Name is a name you assign to a fixture up to 26 characters.

Protocol indicates the discovery protocol (HES or RDM).

Manufacturer lists High End Systems for each. If other RDM devices are discovered by Echo, their manufacturer will be listed.

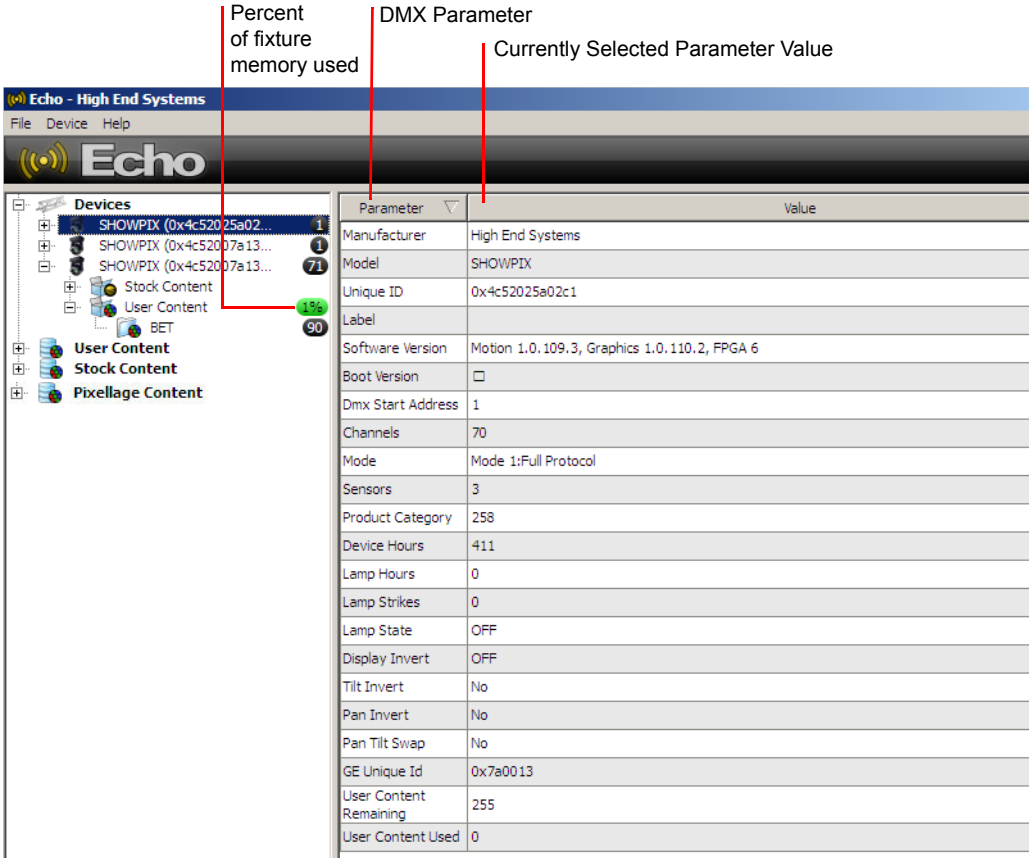
Model identifies the product.

Version lists the current fixture software version.

DMX Address shows the fixture's currently assigned Start Channel on the DMX link.

Viewing Single Device

Selecting an individual fixture displays all the available configuration values for that specific device. You can right click on the Parameter column to sort parameters alphabetically.



NOTE: You can access certain configuration values through the onboard Menu System.

Right-click on the selected device in the navigation window to:

Change the DMX Address: opens a dialog box allowing you to assign a new address to that fixture.

Enable Identify: helps you visually identify a fixture in the rig by causing it to strobe.

Set Pixellage Address: lets you specify the Pixellage content this fixture will output. See *Assigning Pixellage Addresses to Fixtures* on page 31.

Organizing SHOWPIX and StudioPix Content

There are three types of Content.

- Stock content is factory provided and cannot be changed.
- User content consists of all custom content you create.
- Pixellage content is user content you have configured in pixellage format.

Packages are containers for multiple folders and their files. Packages can be uploaded to fixtures, cloned and transported.

Note: Stock Content cannot be edited.

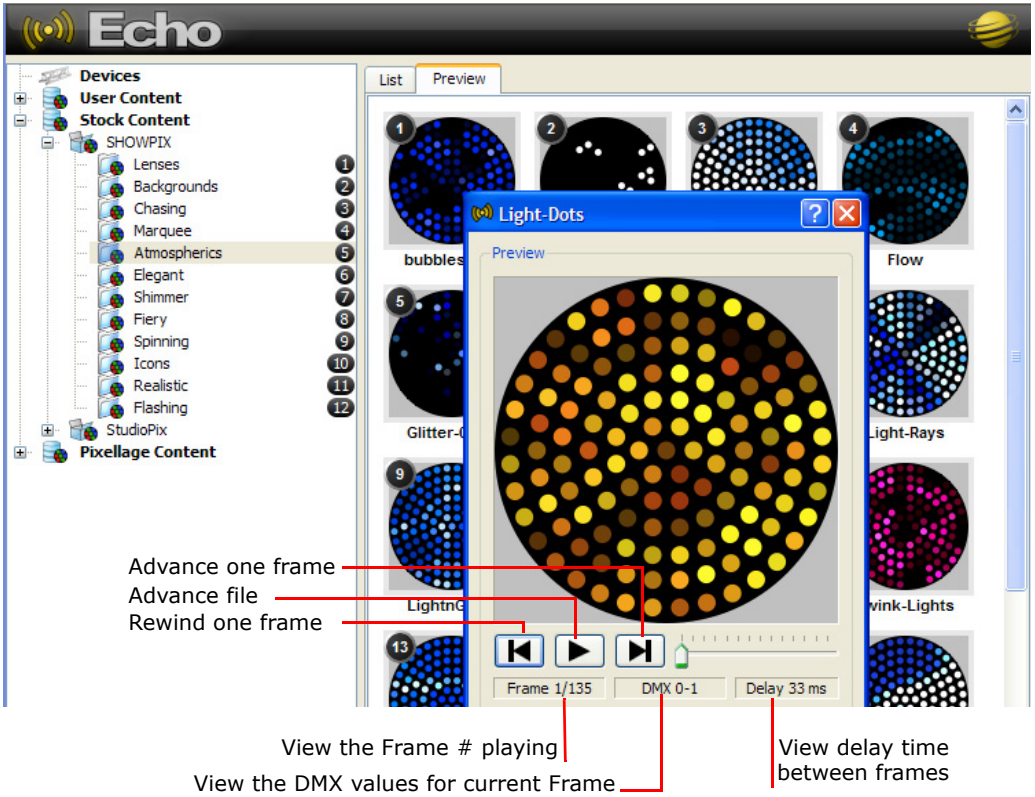
Each folder and the files within a package have associated DMX addresses. Stock content addressing is set and cannot be changed. You will assign DMX values to User and Pixellage content as described in the sections on Content Management.

Stock Content Library

Every SHOWPIX and StudioPix fixture ships with a stock content library of folders containing collections of media files. Echo software also includes the complete stock content library. As new stock content is developed and shipped with new versions of Echo software, you can update your fixtures. Stock content and it's associated DMX addresses cannot be renamed or changed.

Viewing Content

Echo will display the name and associated DMX value for every folder and file of Stock or User content. In the Preview display, you can double click for larger image view window.

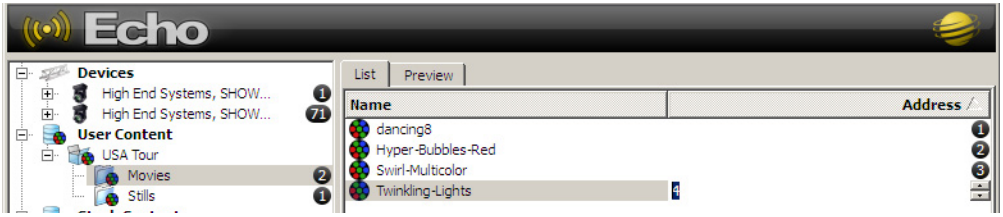


NOTE: ***If you are viewing User Content on a SHOWPIX or StudioPix fixture but not on your local drive, you will see an icon with a question mark until Echo downloads a preview of the User Content from the selected device.***

Managing Content on the Local Drive

Keep the following in mind when managing User Content:

- **You cannot undo any action.** Before you reset all DMX in a package, be aware that you will remove all currently assigned DMX addresses.
- To edit a Folder or File name or DMX address in the list view, you can double click on the name or address and enter a new name or value. Addresses can be entered via the keyboard or by using the scroll up/down buttons on the screen.



Package Options

If you right click on the User Content bold header on the left column then you can select to create a SHOWPIX or StudioPix package. Packages are grouped by fixture type. You cannot upload packages to different types, however you can copy (or drag) content from one fixture type to another and it will be automatically converted to the correct LED array.

When you Right Click on a Package of User Content you see a menu that gives you options to:

- **Rename** the package
- **Autoset ALL DMX** values of the folders within the package
- **Reset All DMX** values of the folders within the package to 0 (no value)
- **Copy** the contents of the package to place in another package on the hard drive or a fixture
- **Cut** the contents of the package to place in another package on the hard drive or a fixture
- **Delete** the package
- Create and name a **New** [**SHOWPIX** or **StudioPix**] **Package**
- **Export** the package to another location on your hard drive or a USB drive for transport

Folder Options

When you Right Click on a Folder of User Content you see a menu that gives you options to:

- **Rename** the folder
- **Edit DMX** value for this folder
- **Autoset DMX** value of this folder

- **Reset DMX** value of this folder
- **Autoset ALL DMX** values of the files within this folder
- **Reset All DMX** values of the files within this folder to 0 (no value)
- **Copy** the contents of this folder to place in another folder on the hard drive or a fixture
- **Cut** the contents of this folder to place in another folder on the hard drive or a fixture
- **Delete** the folder

File Options

When you Right Click on a Folder of User Content you see a menu that gives you options to:

- **Rename** this file
- **Edit DMX** value for this file
- **Autoset DMX** value of this file
- **Reset DMX** value of this file
- **Copy** the file to place in another folder
- **Cut** the file to place in another folder
- **Delete** the file

Managing Fixture Content

To interact with a SHOWPIX or StudioPix fixture on a DMX link, you will need a USB upload module or a Wholehog single USB DMX widget. The Device Menu gives you options for managing content on any SHOWPIX or StudioPix fixture(s) that Echo has discovered on the DMX link.

Uploading User Content to a Fixture

You can upload User Content through Echo by cutting and pasting, or simply dragging a package or folder into the User Content Package on the fixture you select.

- When you Drag or Paste a package into a device, the folders and their files contained in the package are added to the User Content package on the fixture.

  Note: Packages are unique by fixture type and cannot be dragged or copied to other fixture types.

- When you Drag or Paste a folder into a device the folder and its files are added to the User Content package on the fixture.

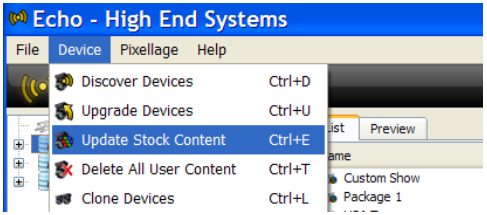
Updating Content

Updating Stock Content

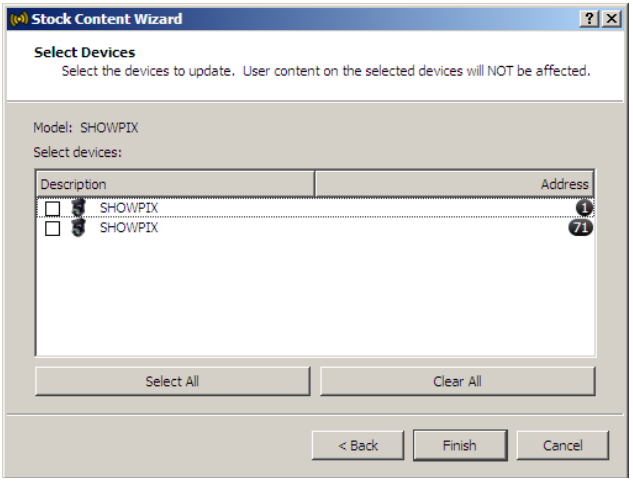
When you download the latest version of Echo software from the High End Systems website at (http://www.highend.com/support/Echo/EchoSoftware.asp), you may find additional media files available as stock content from High End Systems. To update the Stock Content:

1. Select **Update Stock Content** to replace the Stock Content currently loaded on SHOWPIX or StudioPix fixture(s) with the latest version in the Echo application.

   If you haven't Discovered all the devices on the DMX link at Echo startup, you can select **Discover Devices** to find them now.



2. A screen will prompt you to choose SHOWPIX or StudioPix fixture type to upgrade.
3. The next screen lets you select any or all of the devices on the link of that type to update.

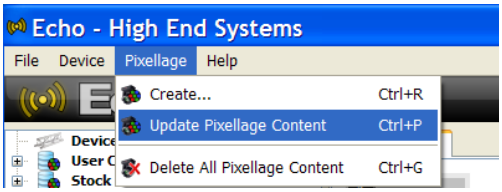


Note: User Content will not be affected on any of the units you select for the Stock Content update.

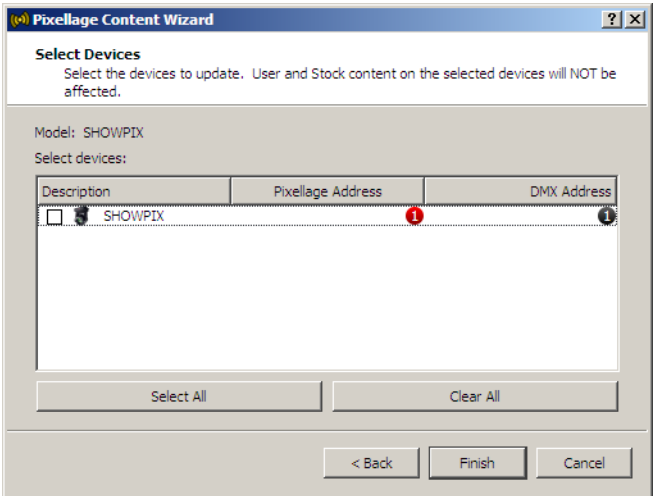
Updating Pixellage Content

To update Pixellage content files currently loaded on a SHOWPIX or StudioPix fixture:

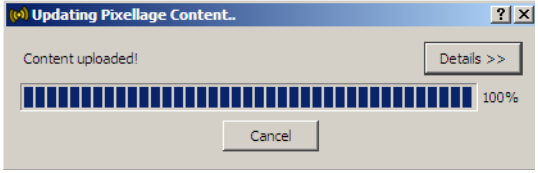
1. Select **Update All Pixellage Content** from the Pixellage menu to replace the Pixellage Content currently loaded on SHOWPIX or StudioPix fixture(s) with the content in the Echo application. A built in wizard with prompt you to first select the fixture type (SHOWPIX or StudioPix).



2. Check individual discovered fixtures with Pixellage content you want to update. You can also click **Select All** to check all the fixtures. Clicking the **Clear All** button will undo the selection. The **Back** button takes you to the previous step and **Cancel** closes the wizard.



3. When you select **Finish**, all Pixellage content will be updated on the selected fixtures.
4. A screen shows update progress and informs you when the process is complete.

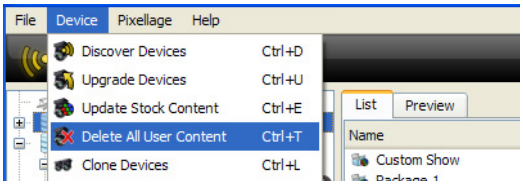


Note: Stock content and User content will not be affected with this command.

Deleting Content

Deleting User Content

Select **Delete All User Content** under the Device menu to delete the User content currently loaded on any SHOWPIX or StudioPix fixture(s) on the link. A built in wizard with prompt you to first select the type of fixture (SHOWPIX or StudioPix) and then a specific device.

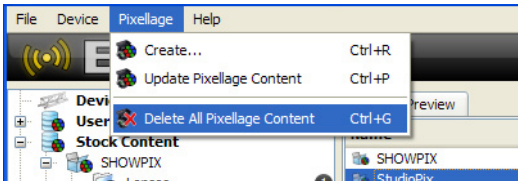


Note: Stock content and Pixellage content will not be affected with this command.

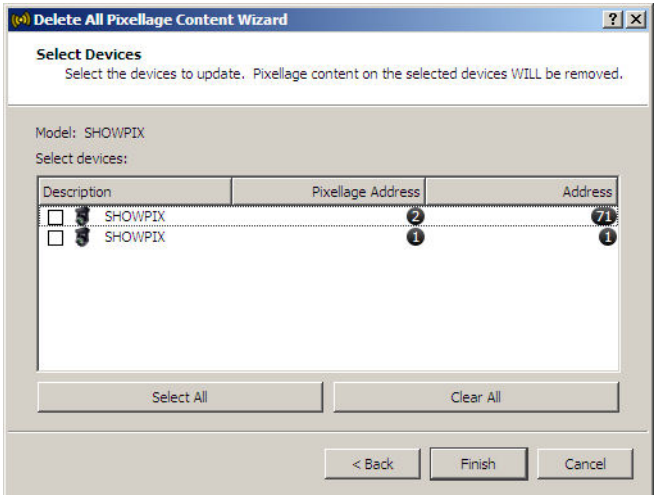
Deleting Pixellage Content

To delete Pixellage content files currently loaded on a SHOWPIX or StudioPix fixture:

1. Select **Delete All Pixellage Content** from the Pixellage menu to delete any Pixellage files currently loaded on a SHOWPIX or StudioPix fixture. A built in wizard with prompt you to first select the fixture type (SHOWPIX or StudioPix).



2. Check individual discovered fixtures with Pixellage content you want to delete. You can also click **Select All** to check all the fixtures. Clicking the **Clear All** button will undo the selection.



3. When you select **Finish**, all Pixellage content will be deleted on the selected fixtures. The **Back** button takes you to the previous step and **Cancel** closes the wizard.

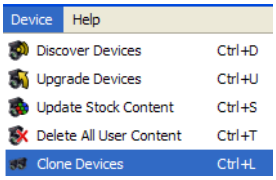
Note: Stock content and User content will not be affected with this command.

Cloning Device Content

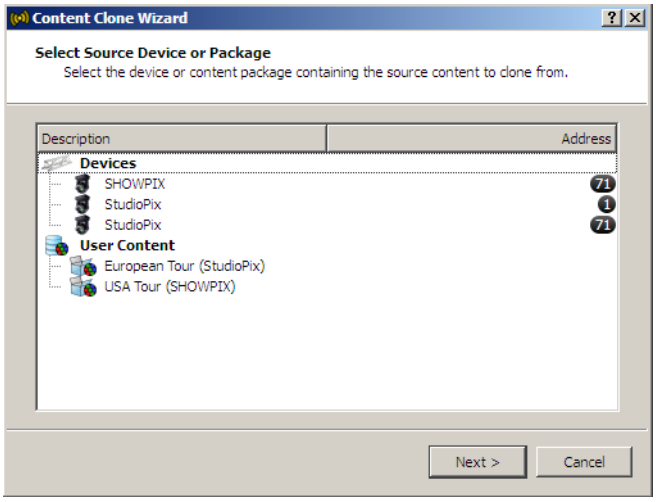
Cloning replaces the User Content on one or more fixtures with a package of content you designate from your hard drive or another fixture. You can also clone from one fixture to another.

> ***Note:*** ***There is no undo command. Any user content that had been previously uploaded to the destination fixture will be permanently removed. Save any user content you want to retain before you initiate a Clone Device command.***

To clone content:

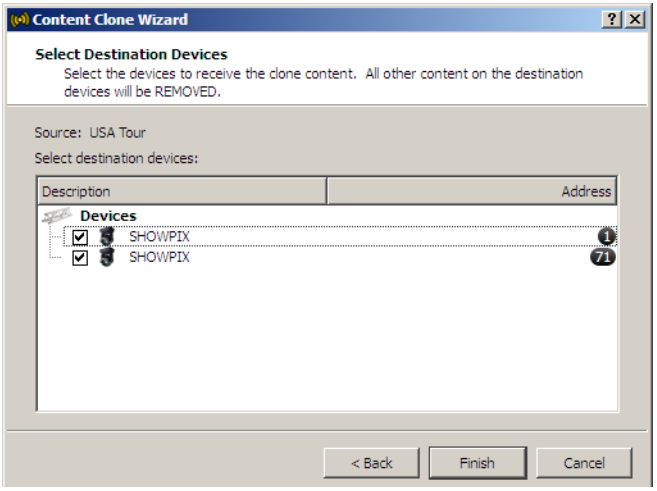


1. Select Clone Devices from the Device menu.
2. In the Clone Wizard, select the device that will be the source for the User Content to be cloned. Remember, you can only clone packages or fixtures of the same type.



3. Click on Next to continue.

4. Select the destination fixture(s) for the User Content you have identified.



5. Click Finish to complete the Cloning process.

Creating User Content

Preparing Content for Echo Conversion

Any custom content you create needs to be converted to a format that maps to the SHOWPIX 127-LED or a StudioPix 61-LED pixel array.

Echo will convert up to 256 frames of content and saves a preview displaying all 256 frames.

Although **.mov** or animated **.gif** files are the most common formats to use as custom content, Echo software can accept a wide variety of formats.

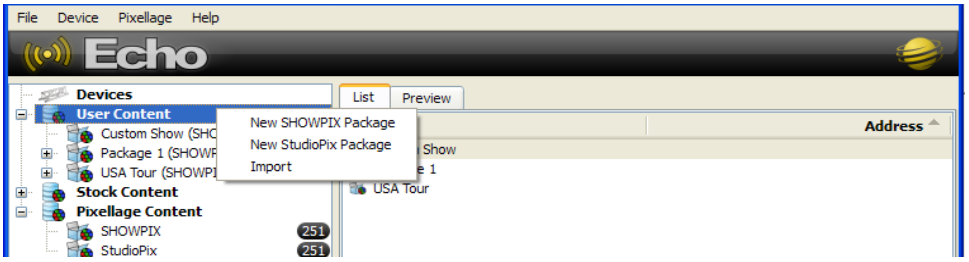
Video file formats:	**Video codecs:**	**Image formats:**
MPEG-1 (MPG, MPEG)	MPEG-1	Windows Bitmap (BMP)
MPEG-2 (PS, TS, VOB)	MPEG-2	Graphic Interchange Format (GIF)
Microsoft (ASF, AVI)	MPEG-4 ASP (including DivX, Xvid)	Joint Photographic Experts Group (JPG, JPEG) Multiple-image Network Graphics (MNG) Portable Network Graphics (PNG) Portable Bitmap (PBM) Portable Graymap (PGM) Portable Pixmap (PPM) Tagged Image File Format (TIFF) X11 Bitmap (XBM) X11 Pixmap (XPM)
Quicktime (MOV)	MPEG-4 AVC/H.264	
Flash (FLV)	Microsoft WMV7	
Digital Video (DV)	Microsoft WMV8, WMV9 (limited support)	
	VC-1	
	MJPEG	
	H.261	
	H.263	
	FLV	
	DV	

For more information on preparing content for Echo conversion and a Flash template for content creation, go to the SHOWPIX or StudioPix support page at ***www.highend.com/support***.

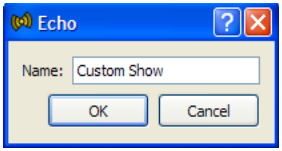
Creating a Package and Folder

Every User Content file needs to be contained within a folder that is part of a package. To create a new package:

1. Right click on User Content in the navigation pane or in the contents pane when User Content is displayed and selecting **New** [**SHOWPIX** or **StudioPix**] **Package**.

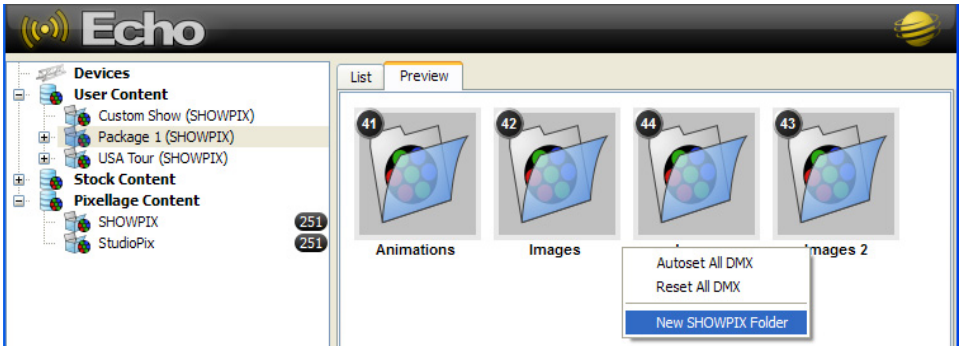


2. Type the name of your new package in the dialog box that appears and click OK to save. Your new package will now appear in the navigation bar under User Content.



To create a folder:

1. Right click in the contents pane of a selected package or on that package in the navigation pane and select **New** [**SHOWPIX** or **StudioPix**] **Folder**.

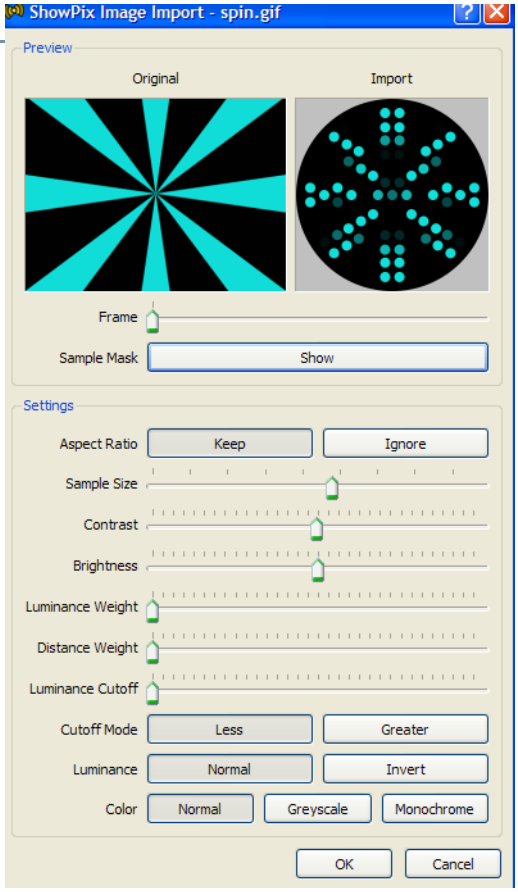


2. Type the name of your folder in the dialog box that appears and click OK to save. Your new folder will now appear within your selected package.

Converting Your Content

To convert content to a format compatible with SHOWPIX and StudioPix fixtures, drag the file from your hard drive or network into a folder in an appropriate fixture type package that you have created. Echo converts the file to a .SPI file type which is a list of numbers with values for each pixel in each frame mapping it to a SHOWPIX or StudioPix LED array.

A preview window will allow you to make some choices about how your content will be converted.



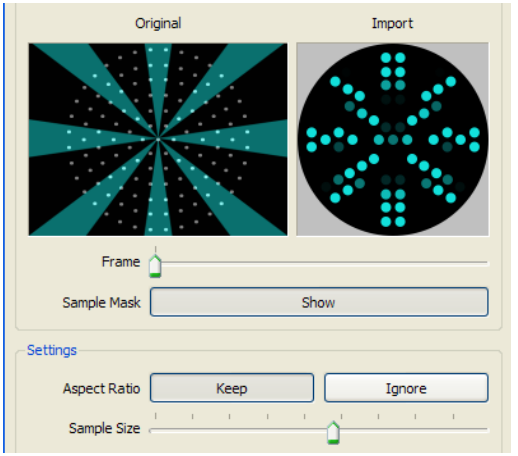
Frame Playback

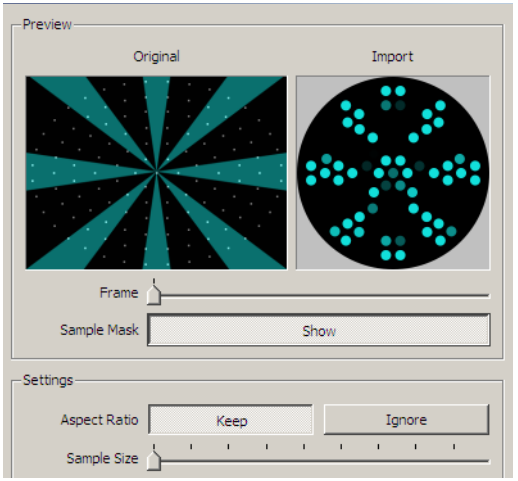
Slide the **Frame** arrow to preview playback of the file converted from the original to the map of the LED array.

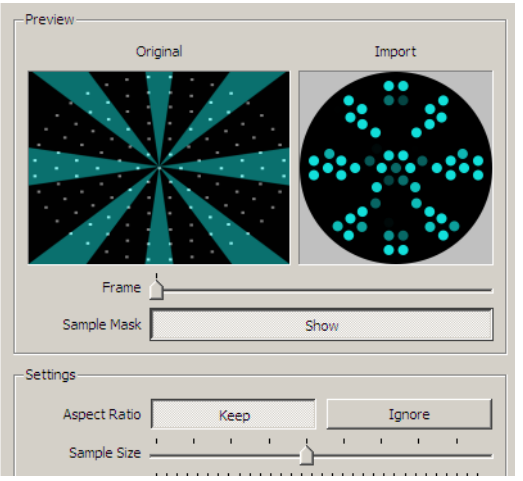
Sample Mask

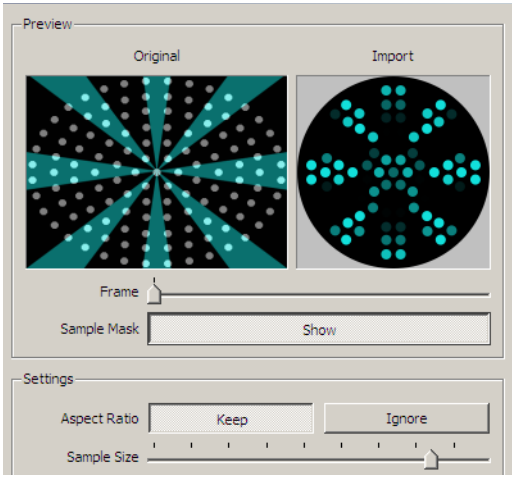
Click Show on the **Sample Mask** field to view an overlay of the area being sampled from the original to assign color to an LED in the LED array.

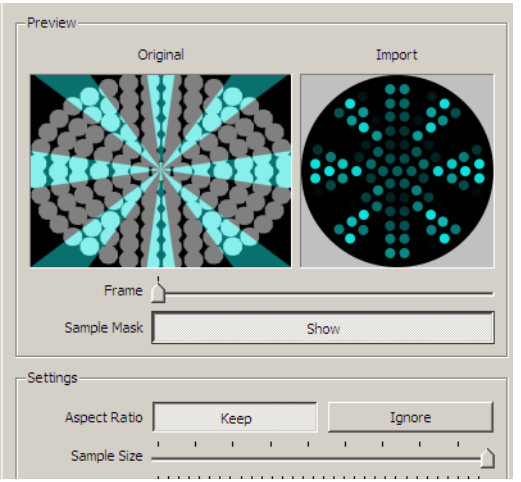
Adjusting the **Sample Size** scale changes the area that is sampled to determine the color assigned to each "pixel".





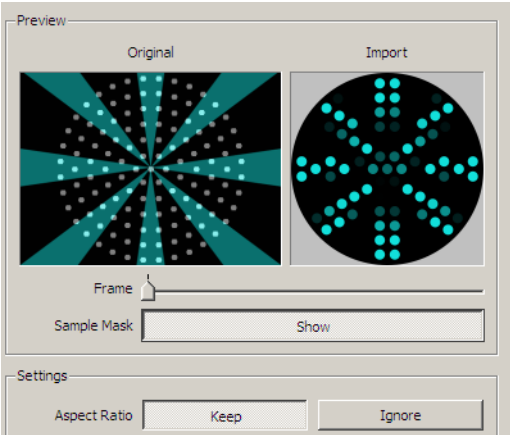


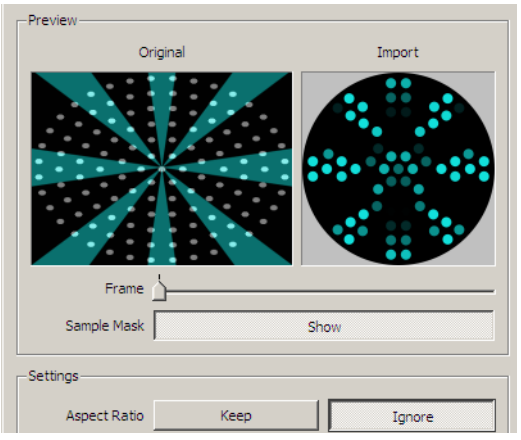




Aspect Ratio

If you have a content file with an **Aspect Ratio** that does not map to 1:1, you can choose whether to retain or adjust the Aspect ratio of the Sample Mask. Clicking **Ignore** in the **Aspect Ratio** field stretches the sample mask to fit the shape of the imported file. Clicking **Keep** centers the Sample mask on the imported image retaining the mask's circular shape.

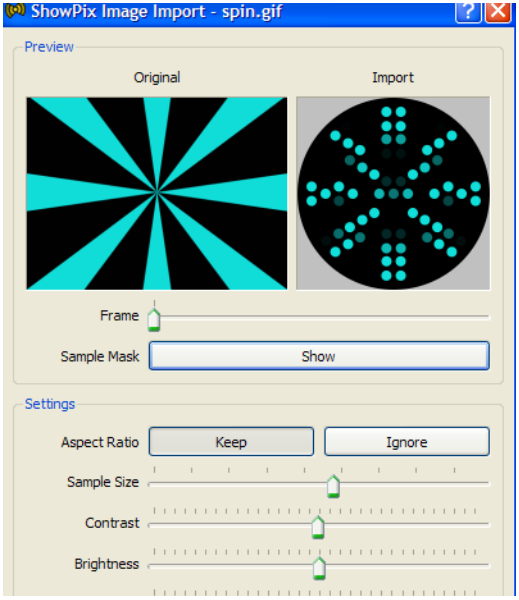




Contrast/Brightness

Contrast adjusts the relative brightness. A higher contrast means that darker areas will appear darker, and brighter areas will appear brighter. A lower contrast means that brighter parts will appear darker and that darker parts will appear brighter.

Brightness adjusts the overall brightness, increasing or decreasing it for all parts of an image.



The following adjustments affect the boundaries between elements of an image. They are especially useful for adjusting the borders of a figure moving against a background.

Luminance /Distance Weight

The final LED colors in echo are calculated by a weighted average of the pixels surrounding the LED area. Increasing the Luminance Weight, means that brighter pixels will contribute more to the final LED color than darker pixels. Likewise, as Distance Weight is increased, pixels that are closer to the center of the LED will contribute more than pixels that are further away.

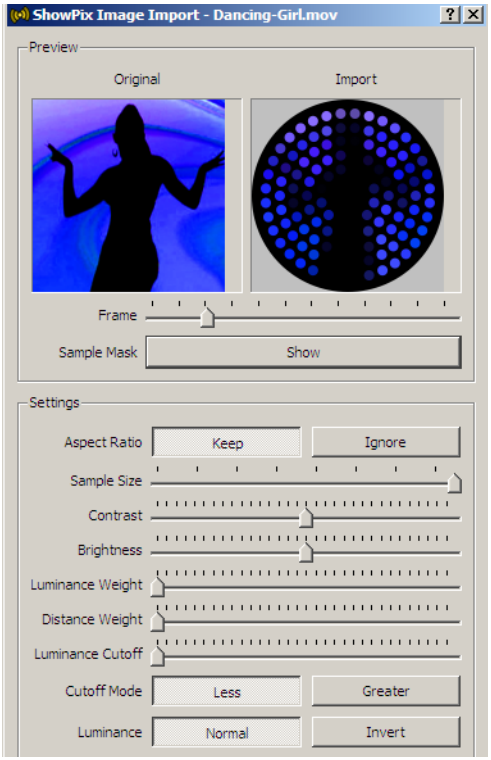
Luminance Cutoff

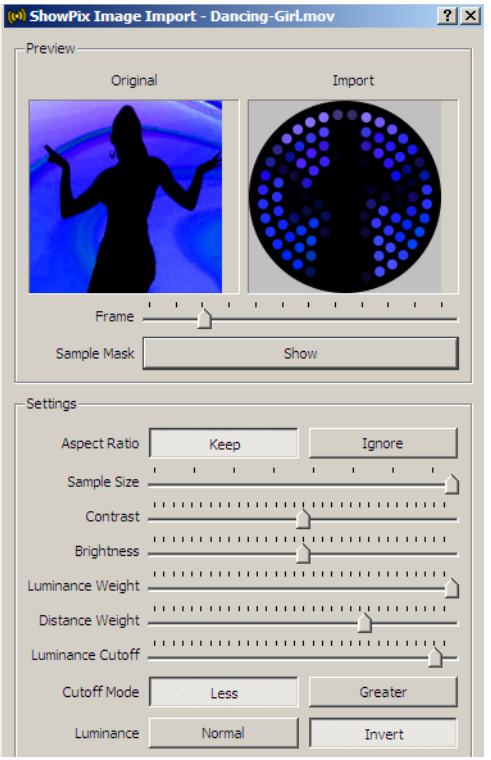
Specifies the minimum brightness of a pixel for it to be taken into account when calculating the final LED color. This allows you, for example, to keep bright or dark parts of an image from effecting the LED color.

Cutoff Mode/Luminance

These controls effect how the Luminance Cutoff works. When the Cutoff Mode is set to Less, then pixels that are darker than the specified Luminance Cutoff are ignored.

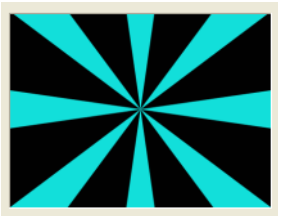
When the Cutoff Mode is Greater, then pixels that are brighter than the Luminance Cutoff are ignored. The Luminance Invert control is used to invert the luminance value before it is tested by the cutoff (it does not invert the final color).



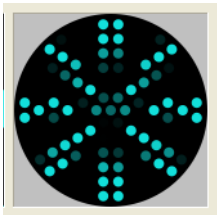


Color

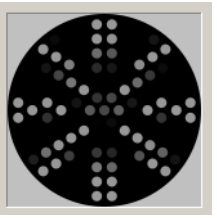
Echo lets you choose how to map the colors in the imported file. Click on the **Color** button converts the original file's color palette to the SHOWPIX display's 256 color palette. **Grayscale** converts the input to grayscale and **Monochrome** converts the input to black and white only.



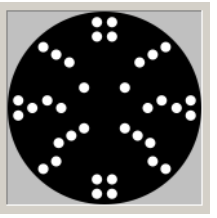
Original



Color



Grayscale



Monochrome

After you have made the adjustments you want, click OK to import the content into the selected Echo folder.

Transporting User Content

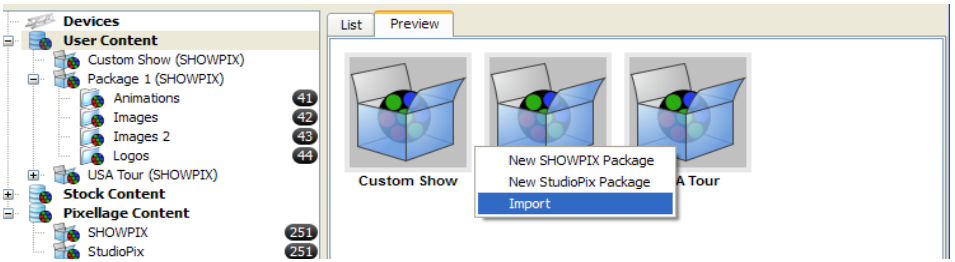
Exporting and Importing a User Content Package

You can import or export any package to a portable or networked hard drive for transport to another computer. Content must be in a package to import or export.

To export, simply Right click on a package and select **Export**. Browse to the location on a drive, Name the package and click the Save button.

To import a package into Echo:

1. Right click on User Content in the navigation bar or in the right pane and choose **Import**.

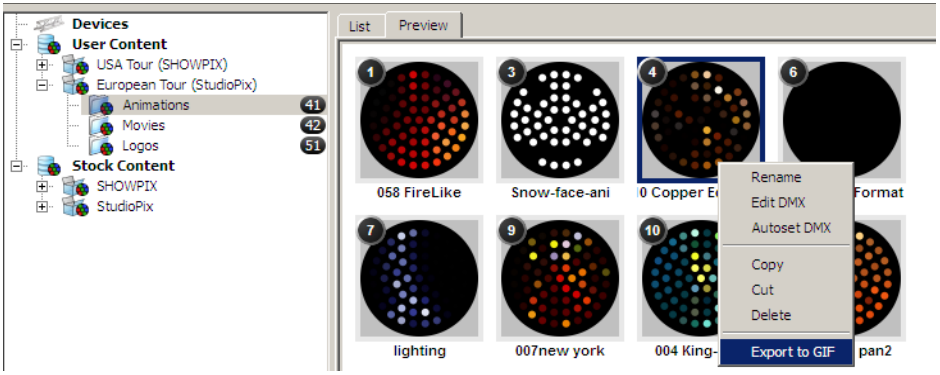


2. Browse to the .pixpkg file you want to import and click Open. The package will be added to the user content in Echo.

Exporting a Preview

If you want to send a preview of a file that you have converted to SHOWPIX format, you can export it as an animated .gif file that someone without Echo software can view. To export a preview:

1. Select the Preview tab for viewing the User Content file.



2. Right Click on the file and select Export to GIF. A dialog window will let you browse to a location to the save the animated GIF created.

Pixellage Content

The Pixellage effect allows you to divide a single piece of content into discrete files and assign each portion to a different fixture for output. Since SHOWPIX and StudioPix fixtures have different array sizes, Pixellage content must be developed for a specific fixture model and cannot be output on another model type.

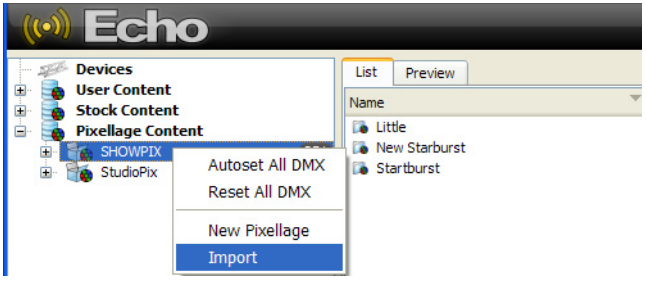
Generating Pixellage content includes the following:

- Creating a template to define how many fixtures will be displaying portions of the media file and their position
- Assigning Pixellage addresses to fixtures for playback
- Selecting and adjusting the media file

Creating a New Pixellage Package

By default the Image Folder A and Image Folder B DMX value of 251 is reserved for Pixellage Content. This allows you to designate Pixellage Content for each Image and then crossfade between them.

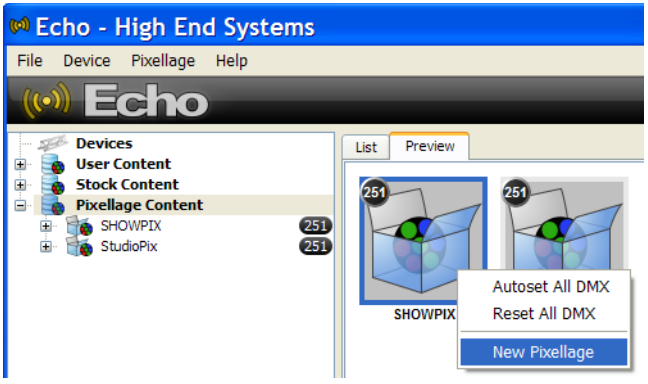
You can import an existing Pixellage package or create a new Pixellage file. To import an existing Pixellage, Right click on SHOWPIX or StudioPix model under Pixellage content in the navigation pane and select **Import**. Browse to the folder containing the Pixellage content you want to import.



To open the Pixellage Creator window, right click on a SHOWPIX or a StudioPix model in the navigation bar under Pixellage Content and select **New Pixellage**.

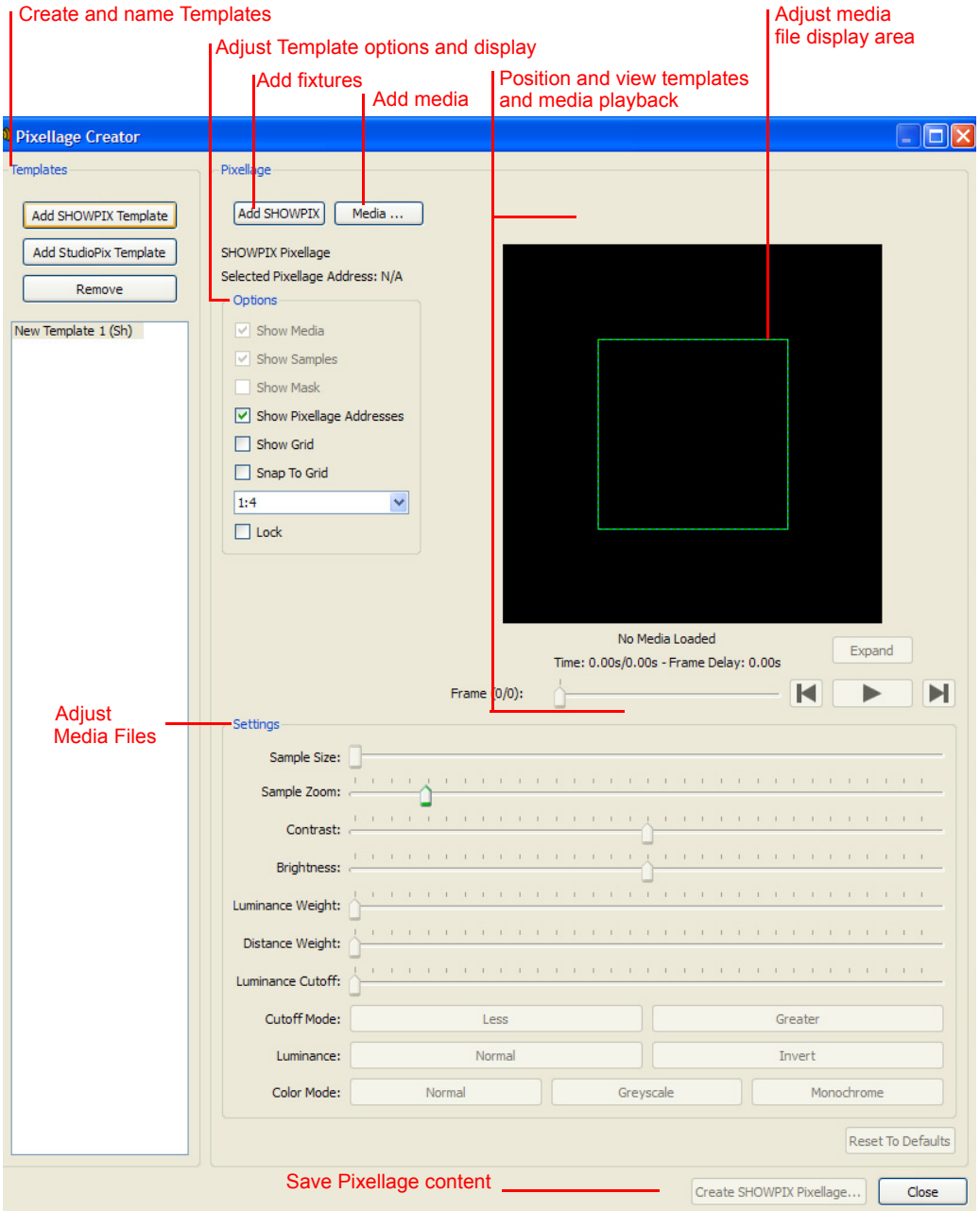
With Pixellage Content selected, you can also right click on the SHOWPIX or the StudioPix package in the contents pane and select **New Pixellage.** This will open the Pixellage Creator window.

The Pixellage Creator window can also be opened by using the Pixellage menu bar on the top of the Echo window.



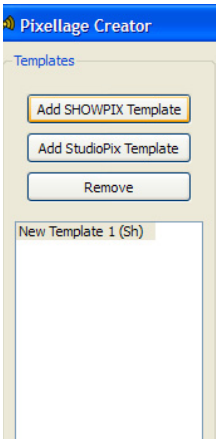
Pixellage Creator Window

The Pixellage Creator window is where you define templates and Media content for the Pixellage effect. It also offers several media adjustments options.



Templates

Pixellage templates define the number of segments of the media file you want to display and the position of each segment of the output. Templates are specific to SHOWPIX or StudioPix fixtures and cannot be interchanged.



Creating a Template

To add a new template click **Add SHOWPIX Template** or **Add StudioPix** button to create a new template or **Remove** to delete a selected template. You also have the option to reconfigure existing templates.

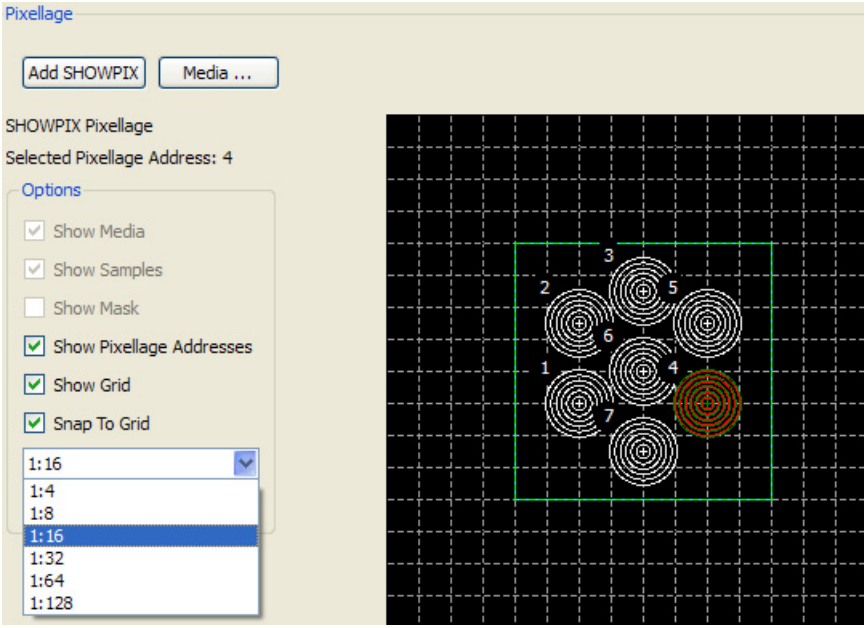
To rename a template, Double click on a template name and type in a new name up to 24 characters. All Templates will be displayed below the Template buttons. The name will automatically include Sh for SHOWPIX or St for StudioPix. Whatever fixture configuration you create will now be saved as that template and can be used with any media file you designate.

Adding and Positioning Fixtures

To add a fixture, click the **Add SHOWPIX** button. A fixture will appear in the Template Display area. Each fixture you add will be stacked on the original position. You can click and drag on the fixture after adding it and place it anyplace in the template display area.

Hold CTRL to select multiple fixtures, then release CTRL to position the multiple selection while keeping the relative spacing.

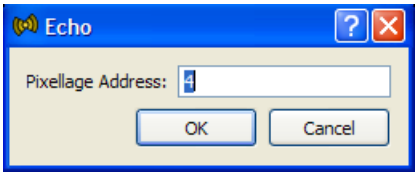
Grid Options



You can check the **Show Grid** option to display a grid and select the grid type from the drop down menu. The **Snap to Grid** option helps you fine tune the fixture positioning.

You can lock or unlock the positioning at any point during the Pixellage creation process by checking or unchecking the **Lock** option box.

Pixellage Address



Each fixture in a template must have a Pixellage address to assign that portion of the media output to a specific fixture when playing back from a DMX console. A default address is assigned to each fixture icon as you create it. You can select a fixture, right click and select **Renumber** A dialog box with allow you to assign another Pixellage address.

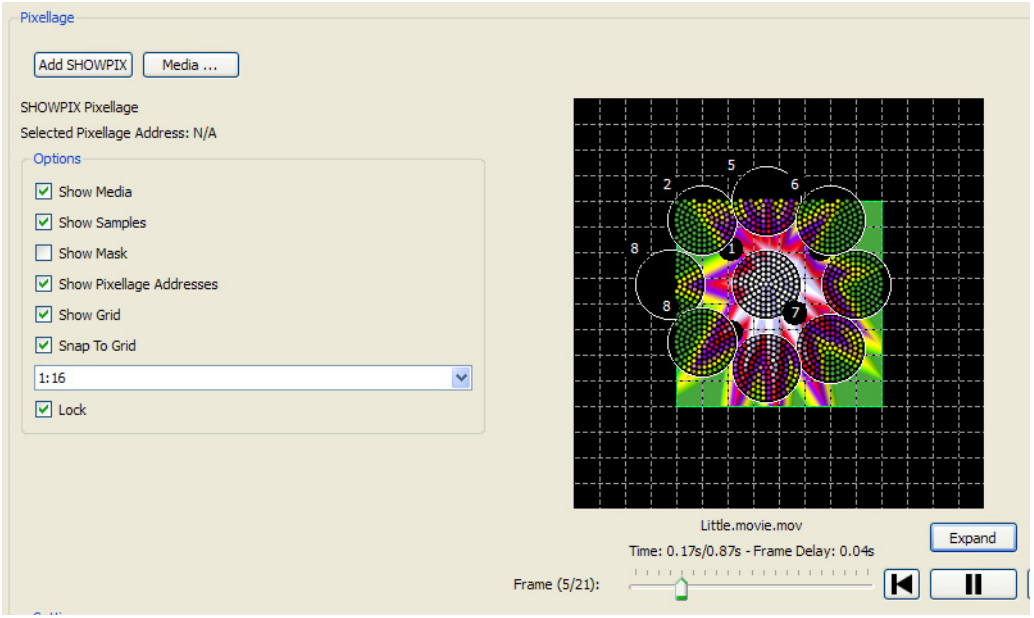
Note: Before uploading content to the fixtures, you need to assign the corresponding pixellage address to each fixture. See **Assigning Pixellage Addresses to Fixtures** *on page 31.*

Media

You can select any user content for Pixellage output.

Adding a Media File

CLick on the Media button and browse to the media file you want to select. Select the file and click on the **Open** button. The file will now appear in the green outlined display box behind the template.

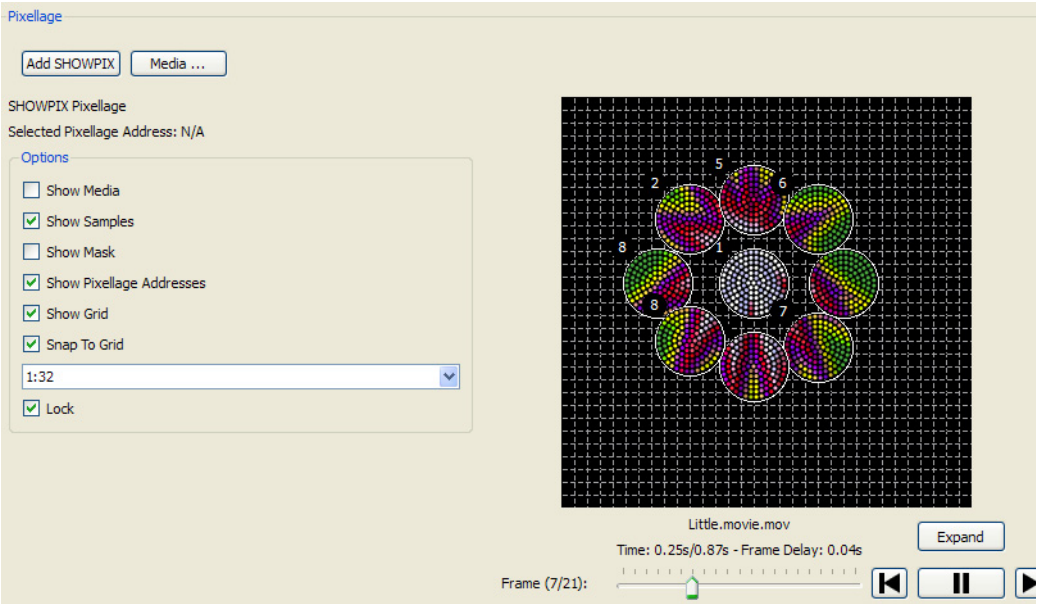


Note: Depending on the file size, this processes can take some time. A status bar at the bottom of the Pixellage Creator window will show import progress.

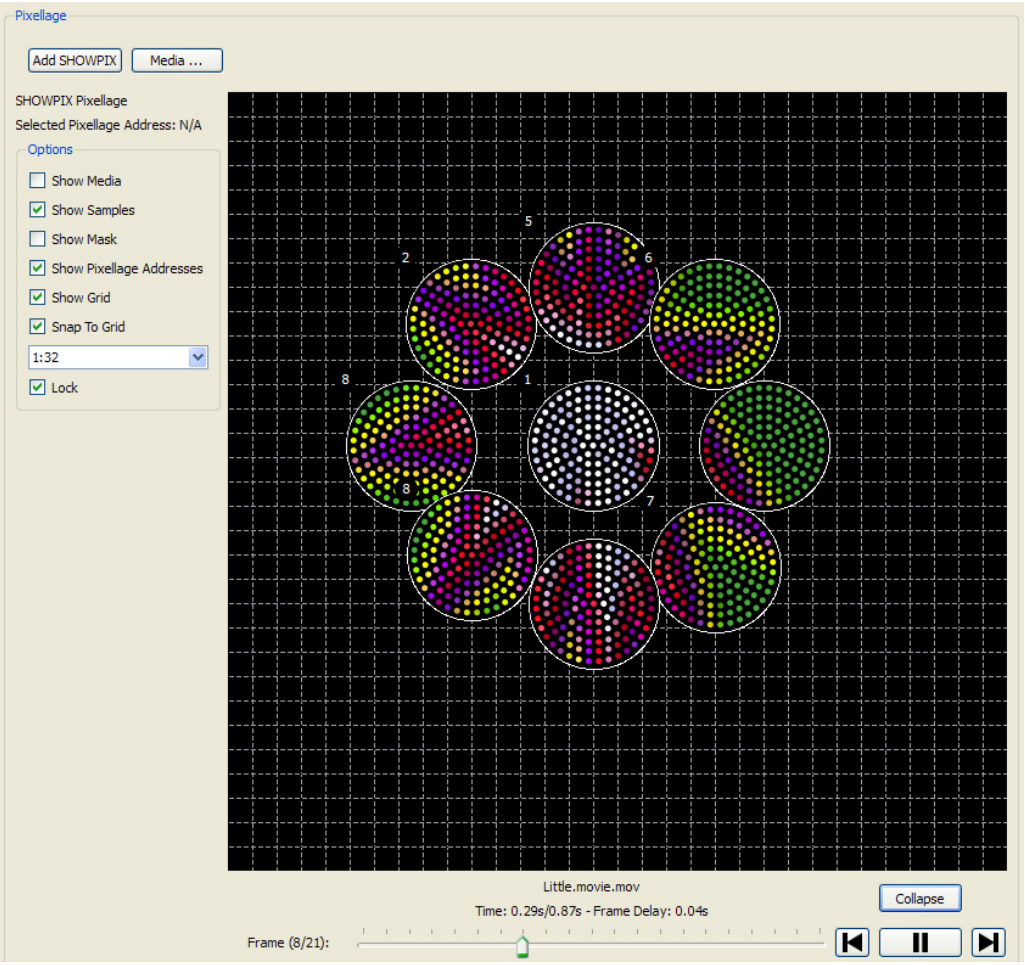
You can adjust the green box to stretch and position the media file by clicking and dragging the corners.

Note: ***This action can affect the resolution of a media file.***

De-selecting the **Show Media** option displays the media as it will be output from the fixture configuration of your template.



Clicking on the **Expand** button below the display box enlarges the display area to help you fine tune the positioning of the fixtures and the media. Selecting the **Collapse** button reduces the display area to the original size.



Adjusting the Media

In addition to stretching the media file to fit the template you have designed, you can apply the same adjustments that are available for any SHOWPIX and StudioPix user content using the **Settings** in the Pixellage Creation window and view the changes in the display window, (see *Converting Your Content* on page 18.

Note: ***You can view the Sample Size and Sample Zoom adjustments when Show Mask is selected in the Options area, (see Converting Your Content on page 18).***

You can select the Reset to Defaults button at any point in the process to return to the original file.

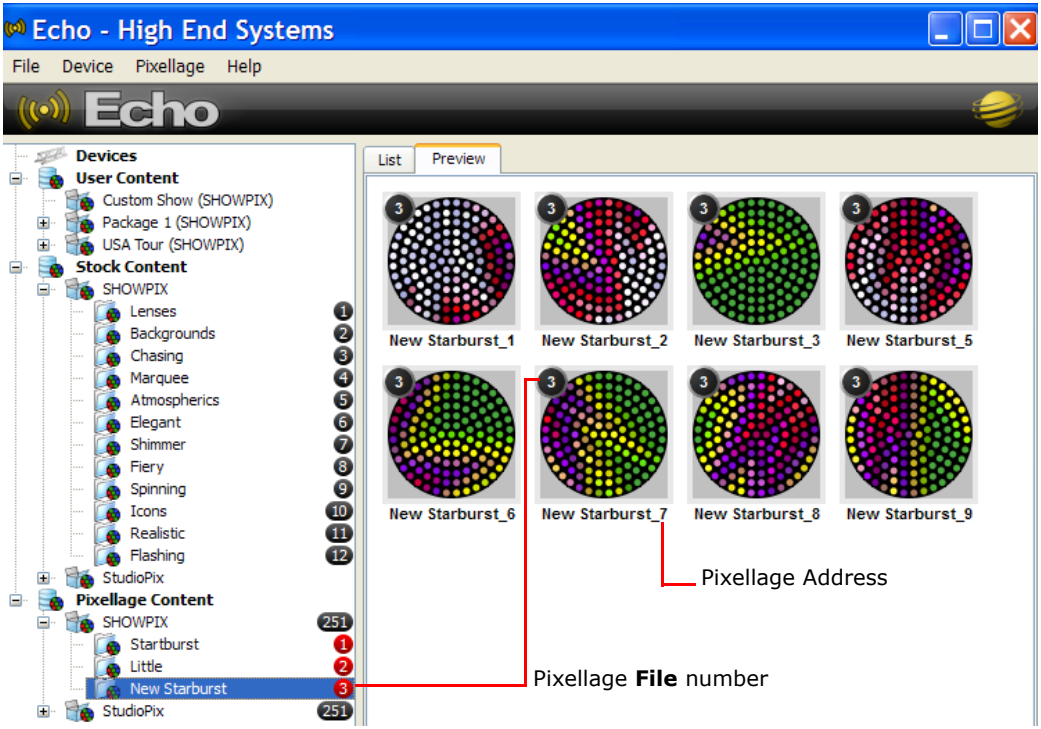
Saving Pixellage Content

When you select the **Create SHOWPIX Pixellage** (or **Create StudioPix Pixellage**) button at the lower right of the Pixellage Creator window, a dialog box will let you name the content. Click **OK** to save the Pixellage content in the Echo fixture package. This may take some time depending on the media file size -- a dialog box with prompt you when the **Pixellage Export is Complete**.

When you select the Close button you will return to the Echo interface, and you will see the new content you have added listed as a folder under the fixture type in Pixellage content.

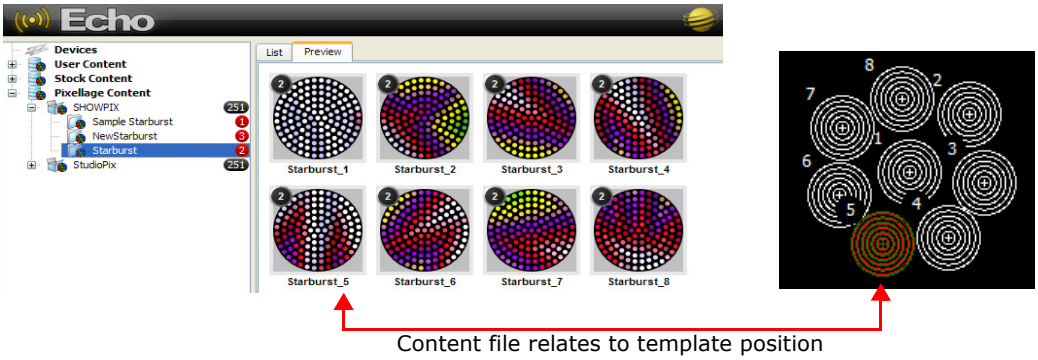
> ***Note:*** ***If you close the Pixellage Creator window before saving the Pixellage content, the media file with its adjustments will not be saved but the templates you created will remain.***

Selecting that folder will display the content as a set of discrete files with Pixellage addresses that can be assigned to specific fixtures for output.

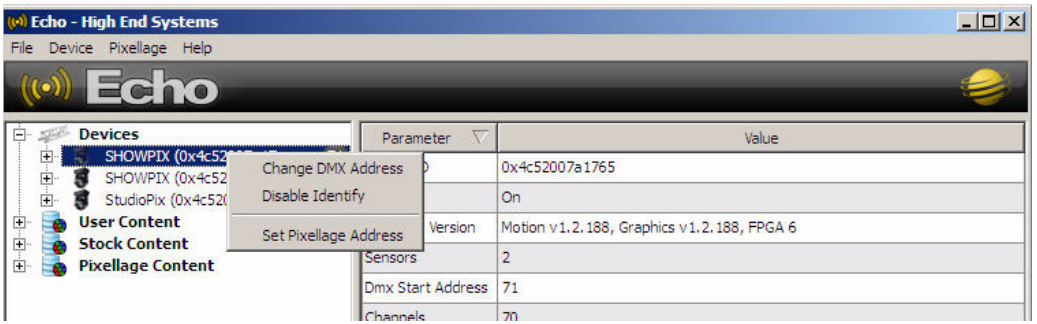


Assigning Pixellage Addresses to Fixtures

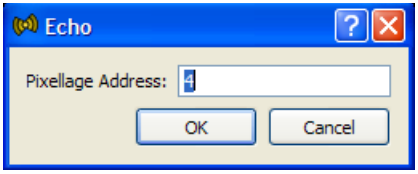
Pixellage addresses match the output from specific fixtures to the template pattern you used to create your Pixellage content. The Pixellage address of a fixture designates the Pixellage file that fixture will output.



To assign a Pixellage address to a fixture, discover the fixtures; then right click on a fixture in the navigation bar and select **Set Pixellage Address**.



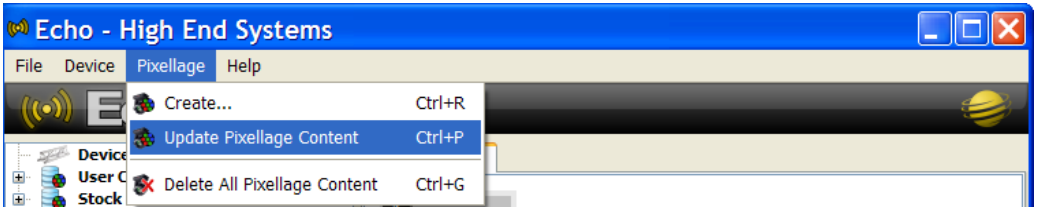
A dialog box will let you assign a Pixellage address for that fixture. The address you set for a fixture will remain upon shut down.



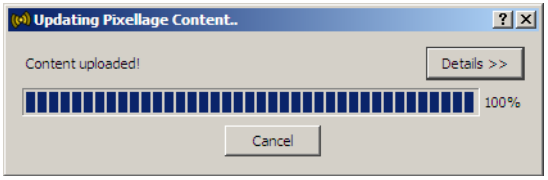
Updating Pixellage Content

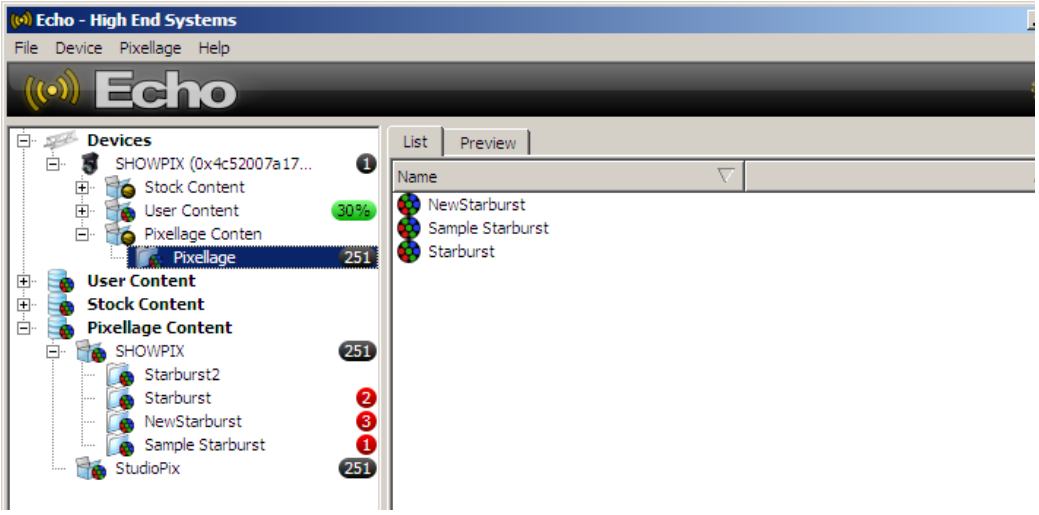
To update the Pixellage content on a specific fixture:

1. Select **Update Pixellage Content** from the Pixellage drop down menu. A dialog box will prompt you to select a fixture model.



2. After you have selected SHOWPIX or StudioPix, you will see all the discovered fixtures of that type with their current Pixellage address and DMX address.
3. Select the fixture(s) for Pixellage content update. You can also choose the **Select All** button to update all the fixtures or **Clear All** to redo your selection.
4. After completing your selection, click **Finish** to start uploading. A dialog box will show upload progress and indicate when upload is complete.
5. Once Pixellage content is uploaded, it will be displayed as part of the Device content for the fixture.





Updating Fixture Firmware

Complete Firmware Update

SHOWPIX or StudioPix Fixture

To upgrade SHOWPIX or StudioPix fixture firmware, you will need to download the latest version of Echo software from the website to your computer. When you download Echo, it will contain the latest SHOWPIX and StudioPix fixture software for upgrading fixtures on your DMX link.

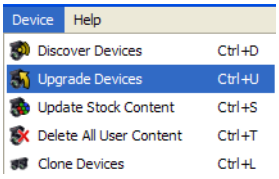
> ***Note:*** ***Any stock content updates will also be contained in each new version of Echo software, (see Updating Content on page 11).***

If there is a SHOWPIX or StudioPix fixture software update to download from the website, run the installer and it will automatically load into the Echo application on your hard drive. The next time you launch Echo, the latest fixture software will be available to upgrade fixtures on the link. The latest software can always be found on the High End Systems website on the SHOWPIX or StudioPix support page (http://www.highend.com/support/LED).

Other HES Fixtures

Download the latest software from the HES website on the specific product's support page. Unzip the file to your hard drive and then launch Echo.

Complete Firmware Update Procedure



To update fixtures:

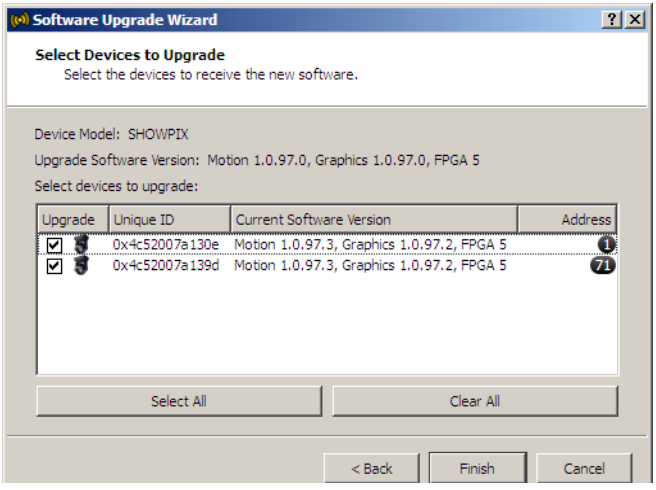
1. Under the Device Menu, select **Upgrade Devices.** A Software Upgrade Wizard will prompt you to select which fixtures on the link you want to upgrade. All units are listed by their Unique ID.

   The next screen lets you choose a fixture type.

   For non-SHOWPIX and StudioPix fixtures, browse to the .bin file you downloaded from the High End website and click **Next** to continue.

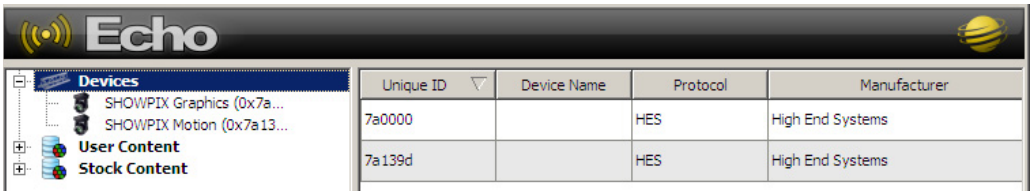
2. Click in the check box beside each fixture you want to upgrade.

3. Click Finish to automatically upgrade those devices.



SHOWPIX or StudioPix Component Update

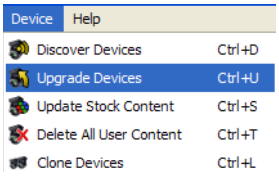
If the fixture software become corrupted, Echo will discover not discover the fixture as a SHOWPIX or a StudioPix device. Instead the fixture's Graphics and Motion components will display separately.



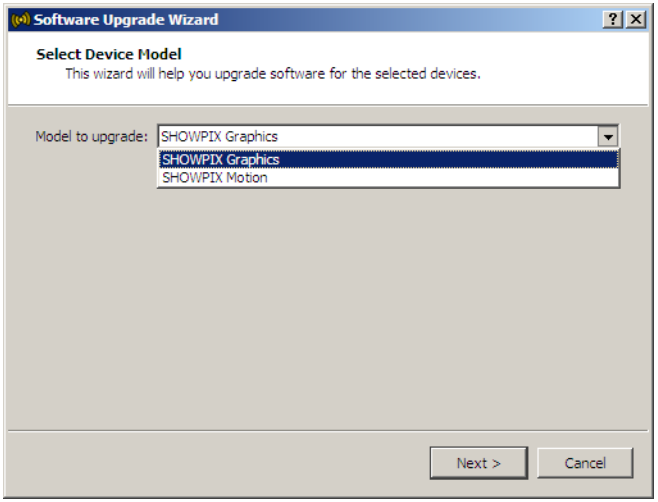
To restore the fixture software in this case, you will need to download the fixture software.zip file from the SHOWPIX or StudioPix support page (**http://www.highend.com/support/LED**) and extract the files it contains to your hard drive.

The following example shows the steps used upgrade separate software components for a SHOWPIX fixture. You can apply the same steps for a StudioPix fixture:

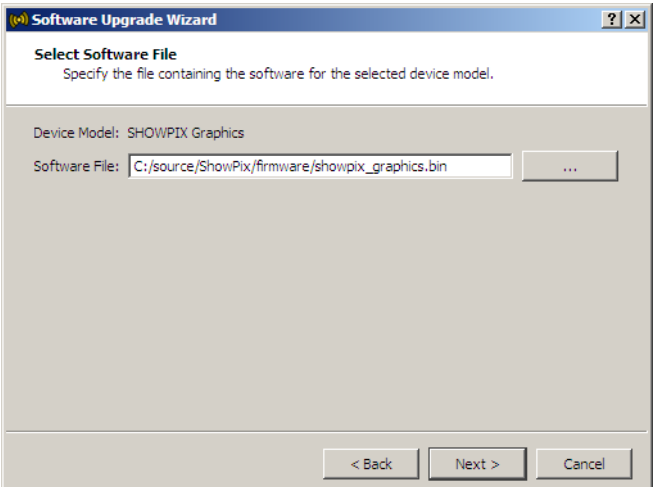
1. Under the Device Menu, select **Upgrade Devices.** SHOWPIX Motion and SHOWPIX Graphics components are discovered separately. Select the **SHOWPIX Graphics** fixture component under Devices.



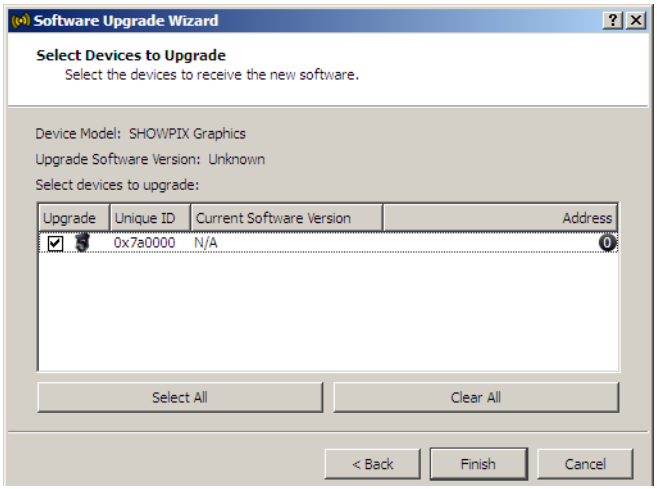
2. An update wizard will prompt you to select from a drop down menu. Select **SHOWPIX Graphics** and click **Next** to continue.



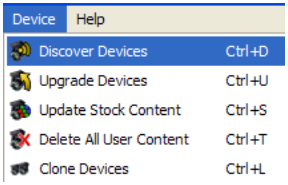
3. Browse to the showpix_graphics.bin file you downloaded from the High End website and click **Next** to continue.



4. Devices needing a component upgrade will display N/A in the Current Software Version column. Select the device(s) needing a component upgrade and then click **Finish** to complete the component upgrade.



5. When the upgrade is complete, select **Discover Devices** from the Device menu to re-discover the devices. If the fixture is discovered as a complete fixture with software versions for both graphics and motion indicated, you are finished.



   If the devices still indicates the separate motion and graphics components, repeat these steps to upgrade the Motion component.